

### Remarks

Favorable consideration of this application in view of the foregoing amendments and the following comments is respectfully requested.

### Support for the Amendments

The only independent claim now present in the application is Claim 61. It has been amended to recite that the claimed nail enamel composition is a mixture of (i) a solution of the defined film-forming addition polymer in non-aqueous solvent and (ii) 0.1-30%, by weight of the composition, of “pigments selected from the group consisting of iron oxides, D&C colors, FD&C colors, and titanium dioxide.” Support therefor is found, for example, at page 10, lines 12-16 of the specification.

Dependent Claim 87 has been amended to recite that the composition contains “0.5-20 wt.% of the pigment.” Support therefor can be found at page 10, lines 13-15 of the specification.

Dependent Claim 88 has been amended to recite that the nail enamel composition contains “1-15 wt.% of the pigment.” Support therefor also may be found at page 10, lines 13-15 of the specification.

### The Rejection Over Strella et al. Alone

In the Office Action of December 23, 2005, Claims 61-66 and 87, as then worded, were rejected under 37 USC 102(b) as allegedly being anticipated by Strella et al. (3, 928,656). In describing the preparation of an electrostatographic toner, Strella discloses the preparation of

an intermediate composition that comprises a mixture of (i) a solution of butyl methacrylate – acrylic copolymer in tetrahydrofuran and (ii) Mogul L carbon black. (See Example II and column 9, lines 20-23.) The tetrahydrofuran is then evaporated with stirring, and the resultant slab of resin/carbon black mixture is then ball milled and sieved, to obtain a toner that can be used in electrostatography. (See column 1, lines 7-9, and column 9, lines 23-28.) It is the intermediate composition that the Examiner says anticipates Claim 61 as previously worded.

Applicants respectfully disagree with the Examiner. Even as previously worded, Claim 61 was not anticipated by the intermediate composition in Stella because, whereas Claim 61 requires that the recited composition be “suitable for application to human nails,” the solvent tetrahydrofuran is an A3 carcinogen (see page 5 of the attached Material Safety Data Sheet for “Tetrahydrofuran”) and is not listed in the International Cosmetic Ingredient Dictionary and Handbook (ICIDH) as being suitable for use in cosmetics. (See attached copy of pages 1700-01 of ICIDH (published by The Cosmetic, Toiletry, and Fragrance Association, Washington D.C.), where “Tetrahydrofuran” would appear, were that solvent approved for use in cosmetics.)

Moreover, with the present amendment of Claim 61, there is now at least one more difference between the nail enamel recited in that claim and the intermediate composition disclosed in Stella. Whereas the amended Claim 61 specifies that the pigment is “selected from the group consisting of iron oxides, D&C colors, FD&C colors, and titanium dioxide,” the pigment in Stella’s intermediate composition is none of those. Rather, it is carbon black.

### The Rejection Over Perronin et al. Alone

In the last Office Action the versions of Claims 61-72, 81-84, and 85-88 then before the Examiner were rejected under 35 USC 103(a) as allegedly being obvious over Perronin et al. (3,991,007). In Example 6, Perronin discloses an autogravure ink composition containing (a)  $\beta$  copper phthalocyanine pigment coated with methyl methacrylate-acrylic acid copolymer (90-10), (b) nitrocellulose resin, and (c) a mixture of organic solvents. The Examiner contends that it would have been obvious to modify Example 6 by substituting a *butyl* methacrylate-acrylic acid copolymer for the methyl methacrylate-acrylic acid copolymer. Applicants submit that even if that substitution were obvious (which they do not concede), the resulting ink would not meet the limitations of amended Claim 61, at least for the reason that the ink would not contain a pigment “selected from the group consisting of iron oxides, D&C colors, FD&C colors, and titanium dioxide.”

### The Rejection Over Perronin et al. in View of Strella et al.

Claims 61-72, 81-84, and 85-88, as previously worded, also stand rejected under 35 USC 103(a) as allegedly being obvious over Perronin in view of Strella. The Examiner states that “Strella teaches butyl methacrylate-acrylic acid copolymer as a suitable polymer to coat pigments.” December 23, 2005 Office Action, page 5, first full paragraph. Perronin, says the Examiner, “suggests the use of several monomers including esters of methacrylic acids wherein the alkyl may be butyl to coat the pigment.” *Id.* Therefore, contends the Examiner, “a skilled artisan would have been motivated to look to Strella and utilize the [butyl] methacrylate-acrylic

acid] copolymer” as a substitute for the methyl methacrylate-acrylic acid copolymer in Example 6 of Perronin. Applicants respectfully disagree.

First of all, contrary to the Examiner’s assertion, Stella does not actually disclose coated pigments, in the sense that Perronin does. Perronin’s pigment particles are individually coated with a “protective layer,” so as to isolate the particles from one another, “thus preventing any reagglomeration.” Column 1, lines 26-28 and 49-51, and column 2, lines 11-23. Because of this coating, Perronin’s pigments are “self dispersible in numerous media in which they are very rapidly dispersed, without grinding, in a homogeneous way in the form of very fine particles.” Column 4, lines 47-51.

Stella, on the other hand, blends his pigment with a hot resinous material, and then allows the mixture to “cool and harden to encase the pigment within the resinous material.” Column 6, lines 20-23. Then that hardened mass is pulverized to an average particle size of less than about 30 microns. Column 6, lines 23-28. There is no apparent reason why one who wants to use the Perronin method to make pigments in which each pigment particle is coated with a protective layer of synthetic resin would be motivated to look to the pigment-encasement art (e.g., Stella) for a suggestion as to how to modify the resin used in Perronin’s examples. Indeed, Perronin expressly dismisses the pigment-encasement art, as being unsuitable for his purposes, stating:

“If the finely divided character of the pigment is not maintained in the course of the application of a coating thereon, only a solid mass of pigment is obtained in which the particles are stuck together by

means of the coating substance and which cannot be used industrially.”

Perronin, column 1, line 66, to column 2, line 3.

A second reason why it would not be obvious to substitute Stella’s butyl methacrylate polymer for the methyl methacrylate polymer Perronin uses is that Perronin specifies that the pigments used in his process “may be mineral or organic pigments, *with the exception of carbon black*,” (emphasis added) and carbon black is the very pigment that is used in all of Stella’s examples. See Perronin, column 2, lines 65-66, and column 9, lines 20-23.

For these two reasons, there is no apparent motivation for one to look to Stella’s teaching of how to make carbon-black toners for an idea of how one might modify the resinous coating on the  $\beta$  copper phthalocyanine pigment disclosed in Example 6 of Perronin.

In addition, as argued above, even if, in Perronin’s Example 6, a butyl methacrylate-acrylic acid polymer were substituted for the methyl methacrylate-acrylic acid polymer, still the pigment would not be one “selected from the group consisting of iron oxides, D&C colors, FD&C colors, and titanium dioxide.”

#### Examiner’s Response to Previous Arguments

Applicants’ arguments filed October 12, 2005, included the point that in Applicants’ nail enamel the butyl methacrylate-acrylic acid copolymer is *dissolved* in the non-aqueous solvent. The Examiner responded that that feature “is not recited in the rejected claim(s).” December 23, 2005 Office Action, page 6, last paragraph. That is incorrect. Claim 61, as then worded, stated that the composition comprises “a solution of a film-forming addition

polymer, of ethylenically unsaturated monomers in non-aqueous solvent.” That limitation remains in Claim 61.

#### Dependent Claims 73-80

Dependent Claims 73-80 contain all of the limitations of independent Claim 61 and, therefore, are also patentable over the cited prior art, at least for the reasons expressed above.

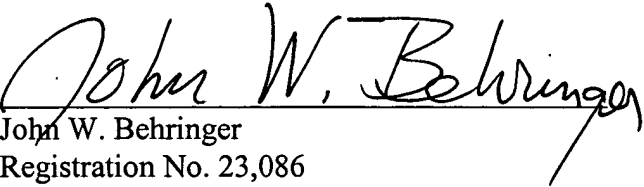
#### Conclusion

Applicants respectfully submit that the present invention is patentably defined by independent Claim 61. Dependent Claims 62-88 are also allowable, in their own right, for defining features of the present invention in addition to those recited in Claim 61. Individual consideration of each of the dependent claims is requested.

Applicants submit that the present application is in condition for allowance. Favorable consideration, and an early Notice of Allowability are requested.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,



John W. Behringer  
Registration No. 23,086  
Attorney for Applicants

FITZPATRICK, CELLA, HARPER & SCINTO  
30 Rockefeller Plaza  
New York, New York 10112-3801  
Facsimile: (212) 218-2200

DC\_MAIN 233480v1



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## MATERIAL SAFETY DATA SHEET

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### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

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**MATHESON TRI-GAS, INC.**  
**959 ROUTE 46 EAST**  
**PARSIPPANY, NEW JERSEY 07054-0624**

**EMERGENCY CONTACT:**  
**CHEMTREC 1-800-424-9300**  
**INFORMATION CONTACT:**  
**973-257-1100**

**SUBSTANCE: TETRAHYDROFURAN**

**TRADE NAMES/SYNONYMS:**

1,4-EPOXYBUTANE; BUTANE, ALPHA, DELTA-OXIDE; CYCLOTETRAMETHYLENE OXIDE;  
FURANIDINE; OXACYCLOPENTANE; OXOLANE; TETRAMETHYLENE OXIDE; THF; RCRA U213;  
UN 2056; MAT23010; RTECS LU5950000

**CHEMICAL FAMILY:** heterocyclic

**CREATION DATE:** Jan 24 1989

**REVISION DATE:** Jun 16 2005

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### 2. COMPOSITION, INFORMATION ON INGREDIENTS

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**COMPONENT:** TETRAHYDROFURAN

**CAS NUMBER:** 109-99-9

**PERCENTAGE:** >99

**COMPONENT:** 2,6-DI-TERT-BUTYL-P-CRESOL

**CAS NUMBER:** 128-37-0

**PERCENTAGE:** 0.025

**COMPONENT:** WATER

**CAS NUMBER:** 7732-18-5

**PERCENTAGE:** <0.1

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### 3. HAZARDS IDENTIFICATION

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**NFPA RATINGS (SCALE 0-4):** HEALTH=2 FIRE=3 REACTIVITY=1

**EMERGENCY OVERVIEW:**

**COLOR:** colorless







**PHYSICAL FORM:** volatile liquid

**ODOR:** faint odor, sweet odor, fruity odor

**MAJOR HEALTH HAZARDS:** respiratory tract irritation, eye irritation, central nervous system depression

**PHYSICAL HAZARDS:** Flammable liquid and vapor. Vapor may cause flash fire. May form peroxides during prolonged storage.

**POTENTIAL HEALTH EFFECTS:**

**INHALATION:**

**SHORT TERM EXPOSURE:** irritation, nausea, headache, drowsiness, dizziness, loss of coordination, suffocation, unconsciousness

**LONG TERM EXPOSURE:** no information on significant adverse effects

**SKIN CONTACT:**

**SHORT TERM EXPOSURE:** irritation

**LONG TERM EXPOSURE:** irritation

**EYE CONTACT:**

**SHORT TERM EXPOSURE:** irritation, blurred vision

**LONG TERM EXPOSURE:** no information on significant adverse effects

**INGESTION:**

**SHORT TERM EXPOSURE:** irritation, nausea, vomiting, diarrhea, stomach pain

**LONG TERM EXPOSURE:** kidney damage, liver damage

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#### 4. FIRST AID MEASURES

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**INHALATION:** If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.

**SKIN CONTACT:** Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

**EYE CONTACT:** Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

**INGESTION:** Contact local poison control center or physician immediately. Never make an unconscious person vomit or drink fluids. When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately.

**NOTE TO PHYSICIAN:** For ingestion, consider gastric lavage and activated charcoal slurry.

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#### 5. FIRE FIGHTING MEASURES

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**FIRE AND EXPLOSION HAZARDS:** Severe fire hazard. Vapor/air mixtures are explosive. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back.



**EXTINGUISHING MEDIA:** alcohol resistant foam, carbon dioxide, regular dry chemical, water, alcohol resistant foam

Large fires: Use alcohol-resistant foam or flood with fine water spray.

**FIRE FIGHTING:** Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck: Evacuation radius: 800 meters (1/2 mile). Water may be ineffective.

**FLASH POINT:** 7 F (-14 C) (CC)

**LOWER FLAMMABLE LIMIT:** 2%

**UPPER FLAMMABLE LIMIT:** 11.8%

**AUTOIGNITION:** 610 F (321 C)

**FLAMMABILITY CLASS (OSHA):** IB

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## 6. ACCIDENTAL RELEASE MEASURES

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### **OCCUPATIONAL RELEASE:**

Avoid heat, flames, sparks and other sources of ignition. Remove sources of ignition. Stop leak if possible without personal risk. Reduce vapors with water spray. Small spills: Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. Large spills: Dike for later disposal. Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

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## 7. HANDLING AND STORAGE

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**STORAGE:** Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.106. Grounding and bonding required. Store in a cool, dry place. Store in a well-ventilated area. Avoid heat, flames, sparks and other sources of ignition. Avoid contact with light. Store outside or in a detached building. Store with flammable liquids. Keep separated from incompatible substances.

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## 8. EXPOSURE CONTROLS, PERSONAL PROTECTION

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**EXPOSURE LIMITS:**

**TETRAHYDROFURAN:**

200 ppm (590 mg/m<sup>3</sup>) OSHA TWA  
250 ppm (737 mg/m<sup>3</sup>) OSHA STEL (vacated by 58 FR 35338, June 30, 1993)  
50 ppm ACGIH TWA (cutaneous absorption danger)  
100 ppm ACGIH STEL (cutaneous absorption danger)  
200 ppm (590 mg/m<sup>3</sup>) NIOSH recommended TWA 10 hour(s)  
250 ppm (735 mg/m<sup>3</sup>) NIOSH recommended STEL

**VENTILATION:** Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

**EYE PROTECTION:** Wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

**CLOTHING:** Wear appropriate chemical resistant clothing.

**GLOVES:** Wear appropriate chemical resistant gloves.

**RESPIRATOR:** The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.

**2000 ppm**

Any supplied-air respirator operated in a continuous-flow mode.  
Any chemical cartridge respirator with a full facepiece and organic vapor cartridge(s).  
Any air-purifying respirator with a full facepiece and an organic vapor canister.  
Any powered, air-purifying respirator with organic vapor cartridge(s).  
Any self-contained breathing apparatus with a full facepiece.  
Any supplied-air respirator with a full facepiece.

**Escape -**

Any air-purifying respirator with a full facepiece and an organic vapor canister.  
Any appropriate escape-type, self-contained breathing apparatus.

**For Unknown Concentrations or Immediately Dangerous to Life or Health -**

Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.  
Any self-contained breathing apparatus with a full facepiece.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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**PHYSICAL STATE:** liquid

**COLOR:** colorless

**PHYSICAL FORM:** volatile liquid

**ODOR:** faint odor, sweet odor, fruity odor

**MOLECULAR WEIGHT:** 72.10

**MOLECULAR FORMULA:** C<sub>4</sub>H<sub>8</sub>O

**BOILING POINT:** 151 F (66 C)



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**FREEZING POINT:** -162 F (-108 C)

**VAPOR PRESSURE:** 145 mmHg @ 20 C

**VAPOR DENSITY (air=1):** 2.5

**SPECIFIC GRAVITY (water=1):** 0.8892

**WATER SOLUBILITY:** soluble

**PH:** Not available

**VOLATILITY:** Not available

**ODOR THRESHOLD:** 20 ppm

**EVAPORATION RATE:** 5.8 (butyl acetate=1)

**COEFFICIENT OF WATER/OIL DISTRIBUTION:** Not available

**SOLVENT SOLUBILITY:**

**Soluble:** ethanol, acetone, dimethyl sulfoxide, ether, benzene, alcohols, ketones, esters, ethers, hydrocarbons

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## 10. STABILITY AND REACTIVITY

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**REACTIVITY:** May form explosive peroxides. Avoid prolonged storage or contact with air, light or storage and use above room temperature.

**CONDITIONS TO AVOID:** Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat.

**INCOMPATIBILITIES:** acids, bases, halogens, metals, oxidizing materials, combustible materials, metal oxides, metal salts

**HAZARDOUS DECOMPOSITION:**

Thermal decomposition products: oxides of carbon

**POLYMERIZATION:** Polymerizes with evolution of heat. Avoid contact with heat, acids or amines.

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## 11. TOXICOLOGICAL INFORMATION

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**TETRAHYDROFURAN:**

**TOXICITY DATA:**

21000 ppm/3 hour(s) inhalation-rat LC50; 1650 mg/kg oral-rat LD50

**CARCINOGEN STATUS:** ACGIH: A3 -Animal Carcinogen

**LOCAL EFFECTS:**

Irritant: inhalation, eye

**ACUTE TOXICITY LEVEL:**

Moderately Toxic: ingestion

Slightly Toxic: inhalation

**TARGET ORGANS:** central nervous system

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** eye disorders, kidney disorders, liver disorders, respiratory disorders, skin disorders and allergies

**TUMORIGENIC DATA:** Available.



**MUTAGENIC DATA:** Available.

**REPRODUCTIVE EFFECTS DATA:** Available.

**ADDITIONAL DATA:** Alcohol may enhance the toxic effects.

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## 12. ECOLOGICAL INFORMATION

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**ECOTOXICITY DATA:**

**FISH TOXICITY:** 2160000 ug/L 96 hour(s) LC50 (Mortality) Fathead minnow (*Pimephales promelas*)

**INVERTEBRATE TOXICITY:** 10 g/L 24 hour(s) EC100 (Abundance) Water flea (*Daphnia magna*)

**ALGAL TOXICITY:** 225000 ug/L 8 year(s) (Population Growth) Blue-green algae (*Anacystis aeruginosa*)

**ENVIRONMENTAL SUMMARY:** Relatively non-toxic to aquatic life.

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## 13. DISPOSAL CONSIDERATIONS

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Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): U213. Dispose in accordance with all applicable regulations.

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## 14. TRANSPORT INFORMATION

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**U.S. DOT 49 CFR 172.101:**

**PROPER SHIPPING NAME:** Tetrahydrofuran

**ID NUMBER:** UN2056

**HAZARD CLASS OR DIVISION:** 3

**PACKING GROUP:** II

**LABELING REQUIREMENTS:** 3



**CANADIAN TRANSPORTATION OF DANGEROUS GOODS:**

**SHIPPING NAME:** Tetrahydrofuran

**UN NUMBER:** UN2056

**CLASS:** 3

**PACKING GROUP/RISK GROUP:** II

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## 15. REGULATORY INFORMATION

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**U.S. REGULATIONS:**

**CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):**

**TETRAHYDROFURAN:** 1000 LBS RQ

**SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.30):** Not



regulated.

**SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.40):** Not regulated.

**SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370.21):**

ACUTE: Yes  
CHRONIC: No  
FIRE: Yes  
REACTIVE: No  
SUDDEN RELEASE: No

**SARA TITLE III SECTION 313 (40 CFR 372.65):** Not regulated.

**OSHA PROCESS SAFETY (29CFR1910.119):** Not regulated.

**STATE REGULATIONS:**

**California Proposition 65:** Not regulated.

**CANADIAN REGULATIONS:**

**WHMIS CLASSIFICATION:** Not determined.

**NATIONAL INVENTORY STATUS:**

**U.S. INVENTORY (TSCA):** Listed on inventory.

**TSCA 12(b) EXPORT NOTIFICATION:**

**TETRAHYDROFURAN**  
**CAS NUMBER:** 109-99-9  
**SECTION 4**

**CANADA INVENTORY (DSL/NDSL):** Not determined.

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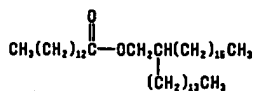
**16. OTHER INFORMATION**

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**Tetradecyloctadecyl Myristate (Cont.)**



**Chemical Class:** Esters

**Functions:** Binder; Emulsion Stabilizer; Film Former; Opacifying Agent; Skin-Conditioning Agent - Occlusive

**Technical/Other Name:**

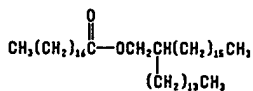
Myristic Acid, Tetradecyloctadecyl Ester

**Trade Name:**

Branched Kester Wax, BK-34 (Koster Keunen)

**TETRADECYLOCTADECYL STEARATE**

**Definition:** Tetradecyloctadecyl Stearate is the ester of Tetradecyloctadecanol (q.v.) and stearic acid. It conforms to the formula:



**Chemical Class:** Esters

**Functions:** Binder; Emulsion Stabilizer; Film Former; Opacifying Agent; Skin-Conditioning Agent - Occlusive

**Technical/Other Name:**

Stearic Acid, Tetradecyloctadecyl Ester

**Trade Name:**

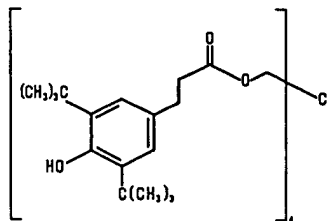
Branched Kester Wax, BK-37 (Koster Keunen)

**TETRADIBUTYL PENTAERITHRITYL HYDROXYHYDROCINNAMATE**

**CAS No.** 6683-19-8 **EINECS No.** 229-722-6

**Empirical Formula:**  
C<sub>72</sub>H<sub>108</sub>O<sub>12</sub>

**Definition:** Tetradibutyl Pentaerithrityl Hydroxyhydrocinnamate is the organic compound that conforms to the formula:



**Information Sources:** 21CFR175.300, TSCA

**Chemical Classes:** Esters; Phenols

**Function:** Antioxidant

**Technical/Other Names:**

Benzenepropanoic Acid, 3,5-Bis(1,1-Dimethylethyl)-4-Hydroxy-, 2,2-Bis[[3-[3,5-Bis(1,1-Dimethylethyl)-4-Hydroxyphenyl]-1-Oxopropoxy] Methyl]-1,3-Propanediyl Ester

3,5-Bis(1,1-Dimethylethyl)-4-Hydroxybenzenepropanoic Acid, 2,2-Bis[[3,5-Bis(1,1-Dimethylethyl)-4-Hydroxyphenyl]-1-Oxopropoxy] Methyl]-1,3-Propanediyl Ester

Pentaerythritol Tetrakis(3-(3,5-Di-Tert-Butyl-4-Hydroxyphenyl)Propionate)

Tetrakis[Methylene(3,5-Di-Tert-Butyl-4-Hydroxyhydrocinnamate)]Methane

**Trade Names:**

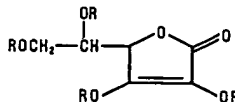
Anox 20 (Great Lakes Chemical)

Tinogard TT (Ciba Specialty Chemicals)

**TETRAHEXYLDECYL ASCORBATE**

**CAS No.:** 183476-82-6

**Definition:** Tetrahexyldecyl Ascorbate is the ester of Hexyldecanol (q.v.) and Ascorbic Acid (q.v.) that conforms to the formula:



where R represents the hexyldecyl moiety.

**Chemical Classes:** Esters; Heterocyclic Compounds

**Functions:** Antioxidant; Skin-Conditioning Agent - Miscellaneous

**Trade Name:**

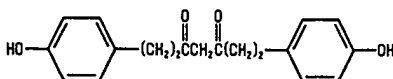
BV-OSC (Barnet)

**TETRAHYDROBISDEMETHOXY-DIFERULOYLMETHANE**

**CAS No.:** 113482-94-3

**Empirical Formula:**  
C<sub>19</sub>H<sub>20</sub>O<sub>4</sub>

**Definition:** Tetrahydrobisdemethoxy-diferuloylmethane is the organic compound that conforms to the formula:



**Tetrahydrodiferuloylmethane**

**Chemical Classes:** Ketones; Phenols

**Functions:** Antioxidant; Oral Care Agent; Skin-Conditioning Agent - Miscellaneous

**Technical/Other Name:**

Tetrahydrobisdemethoxycurcumin

**Trade Name Mixture:**

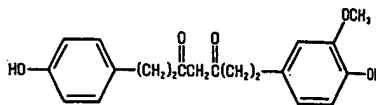
Tetrahydrocurcumin (Sabinsa)

**TETRAHYDRODEMETHOXY-DIFERULOYLMETHANE**

**CAS No.:** 149579-07-7

**Empirical Formula:**  
C<sub>20</sub>H<sub>21</sub>O<sub>5</sub>

**Definition:** Tetrahydrodemethoxy-diferuloylmethane is the organic compound that conforms to the formula:



**Chemical Classes:** Ethers; Ketones; Phenols

**Functions:** Antioxidant; Oral Care Agent; Skin-Conditioning Agent - Miscellaneous

**Technical/Other Name:**

Tetrahydrodemethoxycurcumin

**Trade Name Mixture:**

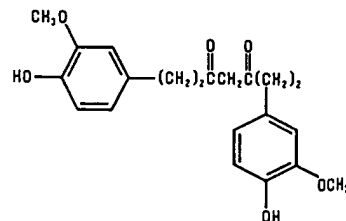
Tetrahydrocurcumin (Sabinsa)

**TETRAHYDRODIFERULOYLMETHANE**

**Empirical Formula:**

C<sub>21</sub>H<sub>24</sub>O<sub>6</sub>

**Definition:** Tetrahydrodiferuloylmethane is the organic compound that conforms to the formula:



**Chemical Classes:** Ethers; Ketones; Phenols

**Function:** Antioxidant

**Trade Name Mixture:**

Tetrahydrocurcumin (Sabinsa)

**Tetrahydrofurfuryl Acetate**

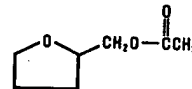
**TETRAHYDROFURFURYL AC**

**CAS No.** 637-64-9 **EINECS No.** 211-296-8

**Empirical Formula:**

C<sub>7</sub>H<sub>12</sub>O<sub>3</sub>

**Definition:** Tetrahydrofurfuryl Acetate ester of Tetrahydrofurfuryl Alcohol (q.v.) acetic acid. It conforms to the formula:



**Information Sources:** 21CFR172.5

**Chemical Classes:** Esters; Heterocyclic Compounds

**Function:** Solvent

**Technical/Other Names:**

2-Furanmethanol, Tetrahydro-, Acetate; Tetrahydro-2-Furanmethanol Acetate

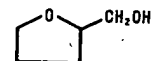
**TETRAHYDROFURFURYL ALC**

**CAS No.** 97-99-4 **EINECS No.** 202-625-6

**Empirical Formula:**

C<sub>5</sub>H<sub>10</sub>O<sub>2</sub>

**Definition:** Tetrahydrofurfuryl Alcohol cyclic alcohol that conforms to the formula:



**Information Sources:** 21CFR172.51; 21CFR175.105, 21CFR176.210, MI-12 RIFM, TSCA

**Chemical Classes:** Alcohols; Heterocyclic Compounds

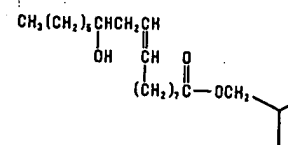
**Functions:** Fragrance Ingredient; Solvent

**Technical/Other Names:**

2-Furanmethanol, Tetrahydro-, Alcohol; Tetrahydro-2-Furanmethanol Alcohol (RIFM)

**TETRAHYDROFURFURYL RICINOLEATE**

**Definition:** Tetrahydrofurfuryl Ricinoleate ester of Tetrahydrofurfuryl Alcohol (q.v.) Ricinoleic Acid (q.v.). It conforms to the formula:



The inclusion of any compound in the Dictionary and Handbook does not indicate that use of that substance as a cosmetic ingredient complies with the laws and regulations governing such use in the United States or any other country.

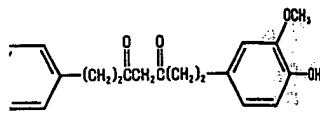
The inclusion of any compound in the Dictionary and Handbook does not indicate that use of that substance as a cosmetic ingredient complies with the laws and regulations governing such use in the United States or any other country.

**Tetrahydrodiferuloylmethane**

**Chemical Classes:** Ketones; Phenols  
**Functions:** Antioxidant; Oral Care Agent; Conditioning Agent - Miscellaneous  
**Trade Name/Other Name:** Hydrobisdemethoxycurcumin  
**Trade Name Mixture:** Hydrocurcumin (Sabinsa)

**HYDRODEMETHOXY-  
TETRAHYDRODIFERULOYLMETHANE**

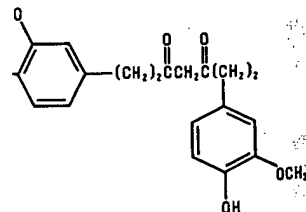
**CAS No.:** 149579-07-7  
**Chemical Formula:**  $C_{24}O_8$   
**Definition:** Tetrahydrodemethoxydiferuloylmethane is the organic compound that conforms to the formula:



**Chemical Classes:** Ethers; Ketones; Phenols  
**Functions:** Antioxidant; Oral Care Agent; Conditioning Agent - Miscellaneous  
**Trade Name/Other Name:** Hydrodemethoxycurcumin  
**Trade Name Mixture:** Hydrocurcumin (Sabinsa)

**TETRAHYDRODIFERULOYLMETHANE**

**Chemical Formula:**  $C_{24}O_8$   
**Definition:** Tetrahydrodiferuloylmethane is the compound that conforms to the formula:



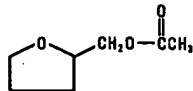
**Chemical Classes:** Ethers; Ketones; Phenols  
**Function:** Antioxidant  
**Trade Name Mixture:** Hydrocurcumin (Sabinsa)

cosmetic ingredient complies with the law.

International Cosmetic Ingredient Dictionary and Handbook

**Tetrahydrofurfuryl Acetate**

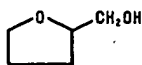
**TETRAHYDROFURFURYL ACETATE**  
**CAS No.:** 637-64-9  
**EINECS No.:** 211-296-8  
**Empirical Formula:**  $C_7H_{12}O_3$   
**Definition:** Tetrahydrofurfuryl Acetate is the ester of Tetrahydrofurfuryl Alcohol (q.v.) and acetic acid. It conforms to the formula:



**Information Sources:** 21CFR172.515, TSCA  
**Chemical Classes:** Esters; Heterocyclic Compounds  
**Function:** Solvent  
**Technical/Other Names:** 2-Furanmethanol, Tetrahydro-, Acetate; Tetrahydro-2-Furanmethanol Acetate

**TETRAHYDROFURFURYL ALCOHOL**

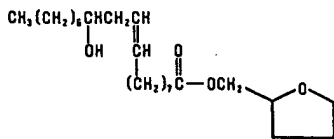
**CAS No.:** 97-99-4  
**EINECS No.:** 202-625-6  
**Empirical Formula:**  $C_5H_{10}O_2$   
**Definition:** Tetrahydrofurfuryl Alcohol is the cyclic alcohol that conforms to the formula:



**Information Sources:** 21CFR172.515, 21CFR175.105, 21CFR176.210, MI-12(9353), RIFM, TSCA  
**Chemical Classes:** Alcohols; Heterocyclic Compounds  
**Functions:** Fragrance Ingredient; Solvent  
**Technical/Other Names:** 2-Furanmethanol, Tetrahydro-, Tetrahydro-2-Furanmethanol; Tetrahydrofurfuryl alcohol (RIFM)

**TETRAHYDROFURFURYL  
RICINOLEATE**

**Definition:** Tetrahydrofurfuryl Ricinoleate is the ester of Tetrahydrofurfuryl Alcohol (q.v.) and Ricinoleic Acid (q.v.). It conforms to the formula:



The inclusion of any compound in the *Dictionary and Handbook* does not indicate that use of that substance as a cosmetic ingredient complies with the laws and regulations governing such use in the United States or any other country.

International Cosmetic Ingredient Dictionary and Handbook

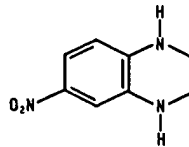
**BEST AVAILABLE COPY**

**Tetramethrin**

**Chemical Class:** Esters  
**Function:** Skin-Conditioning Agent - Emollient

**TETRAHYDRO-6-NITROQUINOXALINE**

**Empirical Formula:**  $C_8H_8N_2O_2$   
**Definition:** Tetrahydro-6-Nitroquinoxaline is the organic compound that conforms to the formula:

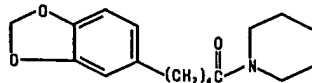


See "Regulatory and Ingredient Use Information," for Colorants in Volume 1, Introduction, Part A.

**Chemical Classes:** Color Additives - Hair; Heterocyclic Compounds  
**Function:** Hair Colorant

**TETRAHYDROPIPERINE**

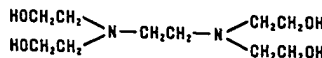
**Definition:** Tetrahydropiperine is the organic compound that conforms to the formula:



**Chemical Classes:** Ethers; Heterocyclic Compounds  
**Function:** Skin-Conditioning Agent - Miscellaneous  
**Trade Name:** Cosmoperine (Sabinsa)

**TETRAHYDROXYETHYL ETHYLENE-  
DIAMINE**

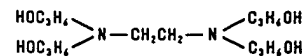
**CAS No.:** 140-07-8  
**EINECS No.:** 205-396-0  
**Empirical Formula:**  $C_{10}H_{24}N_2O_4$   
**Definition:** Tetrahydroxyethyl Ethylenediamine is the substituted amine that conforms to the formula:



**Chemical Class:** Amines  
**Function:** Chelating Agent  
**Technical/Other Names:** 2,2',2'',2'''-(1,2-Ethanediyldinitrilo)Tetrakisethanol; 2,2',2'',2'''-(1,2-Ethanediyldinitrilo)Tetrakis-

**TETRAHYDROXYPROPYL ETHYLENE-  
DIAMINE**

**CAS No.:** 102-60-3  
**EINECS No.:** 203-041-4  
**Empirical Formula:**  $C_{14}H_{32}N_2O_4$   
**Definition:** Tetrahydroxypropyl Ethylenediamine is the substituted amine that conforms to the formula:



**Information Sources:** MI-12(3635), TSCA, USAN  
**Chemical Class:** Amines  
**Function:** Chelating Agent  
**Reported Product Category:** Fragrance Preparations, Misc.  
**Technical/Other Name:** Edetol  
**Trade Name:** Neutrol TE (BASF)  
**Trade Name Mixture:** TEGODEO CW 90 (Goldschmidt)

**TETRAHYDROXYPROPYL ETHYLENE-  
DIAMINE DIOLEATE**

**Definition:** Tetrahydroxypropyl Ethylenediamine Dioleate is the amine salt of Tetrahydroxypropyl Ethylenediamine (q.v.) and Oleic Acid (q.v.).  
**Information Sources:** JCIC  
**Chemical Class:** Amines  
**Function:** Chelating Agent  
**Technical/Other Name:** Ethylenediamine Tetrakis(2-Hydroxyisopropyl) Dioleic Acid

**TETRAMETHRIN**

**CAS No.:** 7696-12-0  
**EINECS No.:** 231-711-6